EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-08

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-D-11-006	04/29/2011 To 03/28/2013	Evaluate 2008 NEI
	Base Option Period Number 1	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: K

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/29/2012 To 12/31/2012

Comments:
The work assignment includes 150 hours for preparation of the work plan and to begin work on the work assignment. To the best of my knowledge, this work does not unnecessarily duplicate any work previously performed or currently being performed.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 04/29/2011 To 03/28/2013		0
This Action:		150
Total:		150

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Lee Tooly (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-5292 FAX Number:
Project Officer Name: Margaret Dougherty (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-2344 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Rodney-Daryl Jones (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-3112 FAX Number:

I. TITLE: "Evaluate 2008 NEI to Identify Areas of Improvement that Benefit Use in Residual Risk Assessments"

Contractor: Eastern Research Group
Contract Number: ERG - EP-D-11-006 Option Period I
Work Assignment Number: 2-08

Work Assignment Manager (WAM):
Rebecca Lee Tooly
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II. PROJECT BACKGROUND

The Office of the Inspector General (OIG) has recommended that the EPA improve air toxics emissions data needed to conduct residual risk assessments. The original OIG report is available at http://www.epa.gov/oig/reports/2008/20071031-08-P-0020.pdf. EPA response to the OIG is due by November 15, 2012. In response to the OIG recommendation and to further continuous improvements activities for the EPA's National Air Emissions Inventory (NEI), the 2008 NEI will be assessed for use by the residual risk program. The NEI is created to provide EPA, federal and state decision makers, the U.S. public, and other countries - the U.S.'s best and most complete estimates of criteria and hazardous air pollutant (CAP and HAP) emissions. While EPA is not directly obligated to create the NEI under the Clean Air Act, the Act authorizes the EPA Administrator to implement data collection efforts needed to properly administer the NAAQS program. Therefore, the EPA Office of Air Quality Planning and Standards (OAQPS) implements the NEI program in support of the NAAQS. Furthermore, the Clean Air Act requires states to submit emissions to EPA as part of their State Implementation Plans that describe how they will meet the NAAQS, and the NEI is used as one mechanism for states to meet some of those emissions requirements, particularly for the 3-year reporting requirements.

While the NAAQS program is the basis on which EPA collects CAP emissions from the state, local, and tribal (SLT) air agencies, it does not require collection of HAP emissions. The HAP reporting requirements are voluntary. Nevertheless, compiling the HAP emissions are an essential part of the NEI program. These emission estimates allow EPA to assess progress in meeting HAP reduction goals described in the Clean Air Act amendments of 1990 such as the evaluation of risks remaining after EPA's application of specific industry standards, e.g., MACT – Maximum Achievable Control Technology standards, and to determine whether additional standards are needed to reduce residual risks. The EPA also conducts a national assessment of air toxics (NATA). The purpose of NATA is to identify and prioritize air toxics, emission source type, and locations that are of greatest potential concern in terms of contributing to population risk. NATA is based on an inventory of air toxic emissions including data available in the NEI. NATA 2005 is the most recent and the results are located at http://www.epa.gov/ttn/atw/nata2005/. NATA typically follows the 3-year cycle of available NEI data. The NEI 2008 is the most recent complete and comprehensive inventory available though due to resource limitations, the NATA 2008 is not expected to be done.

For the 2008 NEI cycle, the Emission Inventory System (EIS), for the very first time was used to collect, compile, and store the emissions data. This new system greatly improved the collection approach from less structured approaches used in the past. The numerous automated data checks in EIS have undoubtedly improved the data quality and allowed EPA more time to review the data prior to publication. Other data quality checks performed on the 2008 NEI have also

improved the HAP emissions such as specific correction of location coordinates for emission releases, augmentation to complete apparent missing data, and priority review of specific facilities due to high-risk potential.

PURPOSE/OBJECTIVE:

The objectives of this work assignment include:

- Evaluate the 2008 NEI v2 to identify areas of improvements in HAP emissions that would benefit the RTR and NATA programs, the expected degree of benefit, and the recommended implementation priority;
- Perform analyses to assess the NEI for missing HAPs;
- Propose next steps to accomplish improvements to extent possible during future NEI cycles and if feasible within this work assignment initiate higher priority improvement(s) identified for 2011 NEI; and
- Provide a project summary to describe the 2008 NEI assessment approach, significant findings including that from analyses performed, any improvements initiated, and the follow-up recommendations for future NEI cycles. The portion of the project summary that describes how this investigation was performed and the focus of the assessment, and significant findings will be provided as response to the OIG report previously referenced.

Operating principles and assumptions include the following:

- Project outcomes will be aligned with NEI relevant data quality objectives for the RTR program as discussed in the EPA's Quality Management Plan, e.g., screen NEI data for potential mischaracterization of significant emission sources including source type, under- or over-estimate of emissions, and accurate release location.
- The focus of the RTR program is on stationary sources. This project will focus on stationary sources only.
- The RTR program also relies on additional industry specific data collected from trade associations and facility specific studies. While this project will not conduct an extensive facility-matching exercise, it may include a small-scale sector pilot to compare and describe any significant differences in what the NEI 2008 has and what the RTR reference data set had, and make recommendations for future improvements, possibly during 2011 NEI cycle. For the most recent RTR work for specific sectors that tried to use the 2008 NEI, it will be helpful to review with responsible contractors, the degree to which the 2008 NEI was useful.
- Within EPA OAQPS, the National Air Data Group that administers the EIS is working with the Sectors Policies and Programs Division (SPPD) to get the industry-specific data collections into EIS in the future.
- Any benefits to the RTR program will likely also benefit the NATA program.
- Review of the NATA 2005 for this project is considered of limited value as that assessment did not use the Emissions Inventory System (EIS) or the current NEI creation process, e.g., updated HAP augmentation procedures.
- NATA 2008 has not started and is not currently planned because of resource constraints however findings from this project could provide benefit to a 2011 NATA if conducted.
- Many improvements conducted for the 2008 NEI will benefit HAP data uses and others are planned for the upcoming 2001 NEI cycle – some of those data quality steps are listed below.
- This assessment of 2008 NEI may establish the degree of evidence for missing HAP data and plausible sources of data.

Listed below are some of the current known issues and improvement activities performed for HAP emissions in the 2008 NEI or planned for the 2011 NEI cycle. This list is not intended as all-inclusive, and may help focus on improvement items already underway that may benefit from additional support in this project, or areas that are not presently addressed that might be investigated in this project.

Reference: 2008 NEI v2 release documentation
<http://www.epa.gov/ttn/chief/net/2008neiv2/2008_neiv2_tsd_draft.pdf

Point Sources:
Improvements -

- EPA's review of high risk facilities as identified by the 2005 NATA study and the review to identify missing mercury emissions for key categories, including electric arc furnaces, municipal waste combustors, hazardous waste incinerators and portland cement plants – resulted in some updates and revisions by SLT agencies. EPA also

updated and developed several datasets containing estimates for Hg and other HAPs for use in gap filling missing emissions; these datasets primarily targeted the high risk facilities and key Hg categories mentioned above.
- EPA re-did the HAP augmentation for NEI 2008 v2 and no pollutants belonging to pollutant groups were added if any member of the group was reported by an SLT.
- Augmentation of HAPs using the Toxics Release Inventory (TRI) database was re-done and replaced in v2, accounting for any updated SLT submittals included in v2 and adding more TRI data for high risk facilities and Hg for the key categories. An additional outlier check was done on key HAPs resulting in exclusion of some suspect TRI data.

Issues -
- Mercury emissions from point source boilers/process heater category are underestimated by approximately 0.5 tons per year due to the EPA HAP augmentation not including mercury estimates for units that did have PM10-filterable emissions as a basis for developing Hg estimate.
- The allocation approach for TRI data assigns facility-wide HAP emissions to EIS processes by using a criteria pollutant as a surrogate (see Section 3.1.4 of NEI 2008 release document). The resulting allocation approach has the disadvantage of assigning HAPs to processes that may not actually have those HAP emissions. While the TRI augmentation process may be modified, the allocation of the HAP emissions to the processes is best done by the facilities through the state submissions.
- Missing lead emissions: A list of 'Missing Lead' contains lead emissions from the 2008 TRI that are not in the 2008 NEI v2. This error occurred in cases where the facility in TRI did not match readily to an EIS facility, e.g., the TRI location coordinates were different from the EIS facility coordinates and the addresses were also different.
- A complete list is located at ftp://ftp.epa.gov/EmisInventory/2008v2/doc/2008neiv2_issues.xlsx.

Non-Point Stationary:
Issues -
- EPA did not fill in data for any pollutants for a number of emissions categories that were delegated to the states because of the likelihood for overlap between point and nonpoint sources. These emissions categories are listed in Section 3.1.6 of the NEI 2008 release document in the table titled "Emissions sources not estimated by EPA with potential nonpoint and point contribution". When states did not submit emissions for these categories, the resulting data could have missing emissions (point, nonpoint, or both). EPA has estimated for HAP VOCs where this approach has resulted in missing emissions of about 189,900 tons. Section 3.1.6 provides more information on the missing HAP-VOC.
- A complete list is located at ftp://ftp.epa.gov/EmisInventory/2008v2/doc/2008neiv2_issues.xlsx.

2011 NEI Plan – Additional Automated QA Checks
Reference - http://www.epa.gov/ttn/chief/net/2011inventory.html

- To eliminate potential emissions double-counting, if specific HAP pollutant group totals are reported, individual species within the pollutant group may not also be reported for same process, e.g, PAH total or individual PAH species – not both; if Chromium is reported, then neither Chromium III nor Chromium VI can be reported for the same process.
- Location coordinates – the first order priority for EIS submission QC checks and subsequent QA checks are facility-level coordinates for emission releases rather than specific emission point release coordinates. SLT agencies have typically not been able to provide reliable coordinates for specific emission release points at a facility. Industry-specific data collected by EPA has also contained suspect locational coordinates for specific emission release points.

III. STATEMENT OF WORK (SOW):

The WAM is authorized to provide technical direction in accordance with the contract. In accordance with the contract SOW, the Contractor shall perform the following tasks:

Task 1: Work Plan, Cost Estimate, and Project Monitoring
The Contractor shall submit a work plan and cost estimate for approval by the Work Assignment Manager (WAM). The work plan shall also include a QA section to describe some of the quality assurance steps that may be included for the data analysis operations on the existing 2008 NEI data.

The Contractor and WAM will have conference call meetings bi-weekly to discuss progress and the status of the work outlined in this WA.

Deliverables Task 1 and Due Dates

1-1 Work plan and cost estimate	Per terms of contract, but no later than 2 weeks after receiving this Work Order
1-2 Status report for on-going tasks	Every 2 weeks via email
1-3 Progress report	Monthly

Task 2: Prioritize the Type of Improvements of Most Significant Benefit to RTR and Establish Assessment Focus
The contractor shall identify the type of improvements in the NEI stationary source point and non-point HAP emissions that are expected to provide the highest degree of benefit to the RTR program use.
The contractor shall also establish key HAPs and the point and nonpoint stationary SCCs to include in this evaluation of the 2008 NEI. Sectors of interest including RTR sectors may include boilers, coke ovens, cement, polymers and resins, secondary aluminum, phosphoric acid/phosphate fertilizers, chlor-alkali, secondary Pb, others. After discussions with the WAM, the WAM will help confirm the sectors of focus for subsequent tasks.

Different type of improvements considered, but not limited to, may be:
a. Missing, under-estimated, or under-reported HAP emissions
b. Over-estimation of HAP emissions, i.e., emission duplications, EPA augmentation of HAPs that are not present
c. Use of inaccurate process activity and/or emission factor parameters for the emission estimate.
d. Mischaracterization of physical configuration, e.g., incorrect source classification of process, incorrect facility or point emission release coordinates, under-reporting of controls in place or inaccurate characterization of the type of control device in place effective for specific HAPs.

Deliverables Task 2 and Due Dates

Memo that establishes the types of improvements to consider for evaluation, degree of significant benefit to RTR program, and establishes priorities for subsequent tasks.	Draft	2 weeks after receiving workplan approval
	Final	Within one week after receiving WAM review comments on Draft

Task 3: Establish Usefulness of the 2008 NEI for Recent RTR Work
The contractor shall review with responsible contractors supporting the EPA's recent RTR work for specific sectors, how useful the 2008 NEI was, or is currently, and summarize findings in a memo that also specifies any desired areas of improvement.

Deliverables Task 3 and Due Dates

Memo that summaries the degree of usefulness of the 2008 NEI v2 for recent RTR work on specific sectors.	Draft	2 weeks after receiving workplan approval
	Final	Within one week after receiving WAM review comments on Draft

Task 4: Assess 2008 NEI for Missing HAPs

Assess 2008 NEI v2 for missing or under-reported HAPs, for the target sectors/ SCCs and HAPs defined in Task 2. Prior to performing any analyses for this Task, the contractor shall provide a memo that outlines the proposed approach, the readily available references that will be consulted, external support and data needs, timeline, and the expected outcomes.

Upon agreement with the WAM, the contractor shall perform some analyses to assess potentially missing HAPs from the 2008 NEI. In order to not exceed the technical hours allowed for this work assignment, this activity may involve pilot-level exercises to investigate potential improvements for specific stationary sectors and HAP emissions important to the RTR program. Pilot-level exercises may help in planning improved procedures for future compilation cycles of the NEI.

Some analyses to consider, but not limit to, may include:

1) Develop a matrix of expected HAPs for target SCCs and investigate whether those pollutants exist in the 2008 NEI. References may include:

- SPPD MACT databases of industry-specific data including RTR modeling files and associated documentation
- EPA emission factor databases
- TRI
- Permit databases
- Special studies by states, regional offices, or the EPA OECA (Office of Enforcement and Compliance).

For RTR sectors where EIAG has made some *facility-level* matches between EIS and SPPD databases, the results may provide a useful basis to develop a matrix that defines "expected" pollutants from specific industry (NAICS) or (EIS) Facility Type and investigate whether those pollutants are included in the 2008 NEI. Such analyses may also help implement additional facility matching or recommend ways to improve matching procedures in the future. The WAM can provide the data results of EIAG facility-level matches.

Similarly for TRI, in which most of the data is *facility-level*, not SCC-specific – the TRI may provide a useful basis to describe "expected" (HAP) pollutants from specific industry (NAICS) or (EIS) Facility Type and investigate whether these pollutants are included in the 2008 NEI.

2) Estimate potentially missing HAP-VOC and HAP-PM through application of derived ratios based on EPA augmentation datasets used for the 2008 NEI point and non-point data categories.

Calculate and apply 2008 HAP-VOC to VOC ratios for gaseous air toxics; and HAP-PM to PM ratios for PAHs, metals. The ratios may be developed based on VOC, HAP-VOC, PM, and HAP-PM emissions values within the available EPA augmentation datasets used for the 2008 NEI. Those augmentation datasets may contain emission estimates computed for SCCs based on emission factor/ toxic fractions for the CAP/ expected HAPs, or based on other emission activity parameters. The resultant HAP-VOC, VOC, HAP-PM, and PM emission estimates in the augmentation data sets may be used directly to compute ratios for specific SCCs. The ratios may be subsequently applied to respective state VOC and / or PM sources in the 2008 NEI for which there was no HAP-VOC or HAP-PM reported. The result would be estimate of potentially missing HAP-VOC and / or HAP-PM. The point source and / or non-point EPA augmentation data sets can be provided by the WAM.

3) For specific RTR sectors targeted, evaluate the usage of TRI data for those sectors in 2008 NEI versus what was available in TRI, and contrast the 2008 NEI TRI use model with what is planned for the 2011 NEI cycle.
The outcome of such analysis should describe the degree of *sound* HAP data that was available in TRI which is missing in the 2008 NEI. The described outcome for 2008 NEI should also be contrasted with the TRI augmentation plans for the 2011 NEI cycle as a way to inform possible procedural improvements for the 2011 NEI. The plan for the 2011 NEI cycle can be provided by the WAM.

Deliverables Task 4 and Due Dates

4-1 Memo that describes and organizes the analyses to be performed for assessing missing HAPS in the 2008 NEI	Draft	September 24, 2012
	Final	October 1, 2012
4-2 Memo documenting results of the analyses	Draft	October 22, 2012
	Final	October 29 2012

Task 5: Prepare report summarizing project results

A report shall be prepared to describe the 2008 NEI assessment approach, significant findings, any improvements initiated, and the follow-up recommendations for 2011 NEI cycle. The project report shall also include a QA section to describe the quality assurance steps taken during the data operations performed to analyze the 2008 NEI data.

The project summary will be prepared in two parts - the first part will summarize how this investigation was performed and the focus of the assessment.

Part 1 may be a summation of the Task 2 memo and the Task 3-1 memo, both of which are scheduled due by or before September 28, 2012.

The second part of the report will summarize the results of the analyses performed and will include recommendations for improvements to implement during the 2011 NEI cycle.

Deliverables Task 5 and Due Dates

Summary of the 2008 NEI assessment approach for improving HAP emissions for RTR, significant findings, any improvements initiated, and the follow-up recommendations for 2011 NEI cycle.	Part 1 Draft	October 15, 2012
	Part 2 Draft	October 29, 2012
	Final Report	November 5, 2012

IV. REPORTING REQUIREMENTS

Reporting requirements shall be in accordance with the terms and conditions of the Contract.

V. SCHEDULE OF DELIVERABLES

Task		Deliverable(s)	Due Date
1	Work Plan, Cost Estimate, and Project Monitoring	1-1 Work plan and cost estimate	In accordance with terms of contract, target within 2 weeks of receiving this WA
		1-2 Status report for on-going tasks	Every 2 weeks via email
		1-3 Progress report	Monthly
2	Prioritize Improvements of Most Significant Benefit to RTR and Establish Assessment Focus	Memo that establishes the types of improvements to consider for evaluation, the degree of significant benefit to RTR program, and establishes priorities for subsequent tasks.	Draft - 2 weeks after receiving workplan approval; Final – within one week after receiving WAM review comments on Draft
3	Establish Usefulness of the 2008 NEI for Recent RTR Work	Memo that summaries the degree of usefulness of the 2008 NEI v2 for recent RTR work on specific sectors.	Draft - 2 weeks after receiving workplan approval; Final – within one week after receiving WAM review comments on Draft
4	Assess 2008 NEI for Missing HAPs	3-1 Memo that describes and organizes the analyses to be performed for assessing missing HAPS in the 2008 NEI	Draft - Sept 24; Final – Oct 1
		3-2 Memo documenting results of the analyses	Draft - Oct 22; Final – Oct 29
5	Report of Project Results	Summary of the 2008 NEI assessment approach for improving HAP emissions for RTR, significant findings, any improvements initiated, and the follow-up recommendations for 2011 NEI cycle.	Part 1 Draft – Oct 15; Part 2 Draft - Oct 29; Final Report – Nov 5

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Washington, DC 20460

Work Assignment

Work Assignment Number: 2-08

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-D-11-006	04/29/2011 To 03/31/2013 Base Option Period Number 1	Evaluate 2008 NEI

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/29/2012 To 02/28/2013

Comments:
This amendment extends the period of performance from an ending date of 12/31/12 until 2/28/13. If additional hours and/or cost is required, please submit a request accordingly.

This amendment is in accordance with CMM 7.3.5.1(D).

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling

Contract Period: 04/29/2011 To 03/31/2013 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Lee Tooly (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 919-541-5292	
	FAX Number:	
Project Officer Name: Karen C. Watson (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 919-541-3114	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Rodney-Daryl Jones (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 919-541-3112	
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Work Assignment

Work Assignment Number: 2-08

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-D-11-006	04/29/2011 To 03/31/2014 Base X Option Period Number	

Contractor: EASTERN RESEARCH GROUP, INC.

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- ☐ Incremental Funding

Period of Performance: From 08/29/2012 To 03/31/2013

Comments:
This Work Assignment Change extends the Period of Performance to read:03/31/2013 in accordance with the Period of Performance end date of Option Period I.

This amendment is in accordance with CMM 7.3.5.1 (D)

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

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Authorized Work Assignment Ceiling

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04/29/2011 To 03/31/2014		
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Contractor WP Dated:		
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Work Assignment Manager Name: Lee Tooly (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-5292 FAX Number:
Project Officer Name: Karen C. Watson (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-3114 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Rodney-Daryl Jones (Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-3112 FAX Number: